STUDY REPORT SUMMARY

ASTRAZENECA PHARMACEUTICALS

FINISHED PRODUCT: Crestor
ACTIVE INGREDIENT: Rosuvastatin

Study No: NIS-CKR-CRE-2007/6
REVORUTION study (Real-life EValuation Of High Dose RosUvastatin in High Risk Patients after TitraTION)

Developmental phase: Marketed

Study Completion Date: 14 Aug 2008

Date of Report: 10 Nov 2008

OBJECTIVES:

This study as domestic, multicenter, prospective, and non-interventional study was planned to evaluate the rate of reach to target LDL-C (low-density lipoprotein cholesterol) goal as the efficacy of rosuvastatin based on NCEP ATP III (National Cholesterol Education Program, 3rd Adult Treatment Panel) guideline in hyperlipidemia patients who were treated with rosuvastatin 10mg or 20mg during 8~12 weeks under clinical physician medical decision.

METHODS:

This study was planned to collect data from high risk patients with hyperlipidemia based on NCEP ATP III guideline, who were treated with rosuvastatin 10mg or 20mg during 8~12 weeks(from visit 2 to visit 3) after start of rosuvastatin treatment for 12 weeks (from visit 1 to visit 2). It was performed that dose maintenance, up-titration, down-titration, or discontinuation of rosuvastatin in all study participants under clinical physician medical decision in daily clinical practice.

RESULTS:

Among 1,482 patients enrolled in this study, data from 1,307 patients were used for analysis. The demographic information, and medical history and risk factors associated with hyperlipidemia of the patients enrolled in the study were summarized as following (Table 1, Table 2).

Table 1. Demographics

		No. of patients N (%)
Gender	Male	707 (54.09)
	Female	600 (45.91)
Age	Mean ± SD (year)	60.17± 11.59
	Min - Max	23 ~ 93
	20 ~29	10 (0.77)
	30 ~ 39	53 (4.06)
	40 ~ 49	181 (13.85)
	50 ~ 59	351 (26.86)
	60 ~ 69	413 (31.60)
	≥ 70	299 (22.88)

		No. of patients N (%)
BMI	Mean ± SD (kg/m^2)	23.89 ± 2.61
	Min - Max	15.58 ~ 36.3
	Missing	144 (11.02)
	< 25 kg/m^2	776 (59.37)
	25 ~ 27.5 kg/m^2	302 (23.11)
	≥ 27.5kg/m^2	85 (6.50)
Patient type	In patient	137 (10.48)
	Out patient	1,170 (89.52)

Table 2. Medical history and risk factors

		No. of patients N (%)
Concurrent Disease	Yes	1,082 (82.79)
	No	225 (17.21)
	Coronary Heart Disease	498 (46.03)
	Symptomatic carotid artery	4 (0.37)
	Diabetes Mellitus	190 (17.56)
	Abdominal Aortic Aneurysm Carotid artery	66 (6.10)
	Peripheral Artery Disease	442 (40.85)
Risk factor	Yes	1,236 (94.57)
	No	71 (5.43)
	Hypertension	805 (65.13)
	Smoking	383 (30.99)
	Low HDL	210 (16.99)
	Premature Coronary Artery Disease	50 (4.05)
	Family History	308 (24.92)
	Old Age	549 (44.42)
	Metabolic Syndrome	64 (5.18)
Disease duration	Mean ± SD (year)	0.63 ± 1.62
	Min-Max	0 ~ 16
Previous Treatment	Yes	268 (20.50)
	No	1,039 (79.50)
	HMG-CoA reductase inhibitor	257 (95.90)
	Fibric acid	17 (6.34)
Target LDL-C	70 mg/dL	299 (22.88)
	100 mg/dL	1,008 (77.12)

In treatment status, patients treated with rosuvastatin in maintaining dose were 1,184 (90.59%), down-titrate patients were 118 (9.03%), up-titrate patients were 3 (0.38%), and discontinued patients were 2 (0.15%) from visit 2 to visit 3. The mean treatment duration was 73.01 ± 11.84 day from visit 2 to visit 3.

In concomitant medication, 816 patients (62.43%) had taken rosuvastatin with concomitant medication. The total number of treated concomitant medication was 1,367. The detail information of concomitant medication was summarized as following (Table 3).

Table 3. Concomitant medication

No. of patients with Concomitant medication	N[1] (%)	N[2]
	816 (62.43)	1367
CARDIOVASCULAR SYSTEM	603 (73.90)	782
Angiotensin II antagonists, combinations	223 (27.33)	223

No. of patients with Concomitant medication	N[1] (%)	N[2]
	816 (62.43)	1367
Angiotensin II antagonists, plain	184 (22.55)	184
Selective calcium channel blockers with mainly vascular effects	122 (14.95)	122
Beta blocking agents	104 (12.75)	105
Ace inhibitors, plain	40 (4.90)	40
Vasodilators used in cardiac diseases	39 (4.78)	43
Others	57 (6.99)	65
BLOOD AND BLOOD FORMING ORGANS	329 (40.32)	382
Antithrombotic agents	329 (40.32)	382
ALIMENTARY TRACT AND METABOLISM	164 (20.10)	187
Oral blood glucose lowering drugs	159 (19.49)	181
Others	6 (0.74)	6
OTHERS	16 (1.96)	16

[1]No. of patients [2]No. of medications

In analysis of reach to target LDL-C goal, target level was classified into 2 groups by each visit (Table 4). Among 70mg/dL target group, patients who reached to their target level were 133 (44.48%) at visit 2 and 182 (60.87%) at visit 3. Among 100mg/dL target group, patients who reached to their target level were 632 (62.76%) at visit 2 and 891 (88.66%) at visit 3.

Table 4. Reach to target level

	Target level	Reach (+) N (%)	Reach (-) N (%)
Visit 2	70 mg/dL	133 (44.48)	166 (55.52)
	100 mg/dL	632 (62.76)	375 (37.24)
Visit 3	70 mg/dL	182 (60.87)	117 (39.13)
	100 mg/dL	891 (88.66)	114 (11.34)

According to the analysis of the change for lipid profile (total Cholesterol, LDL-C, HDL-C, TG) from visit 1 to visit 2, the level of LDL-C decreased from 147.77±62.01mg/dL to 92.37±27.18mg/dL (mean change: -55.40±61.36mg/dL), and the level of total cholesterol decreased from 233.18±44.55mg/dL to 179.19±38.56mg/dL (mean change: -53.98±37.69mg/dL). The level of HDL-C increased from 48.27±16.35mg/dL to 50.18±10.33mg/dL (mean change: 1.92±13.84mg/dL), and the level of TG (Triglyceride) decreased from 198.31±93.61mg/dL to 173.40±74.27mg/dL (mean change: -24.91±60.95mg/dL). The overall changes of lipid profile were statistically significant (p< .0001). The other information of laboratory values from visit 1 to visit 2 was summarized as following (Table 5).

Table 5. The mean change of lipid profile & laboratory value from Visit 1 to Visit 2, (mg/dL)

	N	Visit 1 Mean± SD	Visit 2 Mean± SD	Difference (Visit 2 – Visit 1) Mean± SD	p-value[†]
LDL-C	1,306	147.77±62.01	92.37±27.18	-55.40±61.36	<.0001
Total Cholesterol	1,307	233.18±44.55	179.19±38.56	-53.98±37.69	<.0001
HDL-C	1,306	48.27±16.35	50.18±10.33	1.92±13.84	<.0001
TG	1,303	198.31±93.61	173.40±74.27	-24.91±60.95	<.0001
AST	1,167	23.27±11.14	22.99±10.00	-0.28±7.28	0.1872
ALT	1,165	23.63±14.66	23.63±12.46	0.00±11.58	0.9990
Creatinine	338	1.43±4.26	1.40±4.26	-0.03±0.14	<.0001
Creatine kinase	835	62.78±68.58	64.90±60.33	2.11±37.92	0.1075

†paired t-test

According to the analysis of the change for lipid profile (total Cholesterol, LDL-C, HDL-C, TG) from visit 1 to visit 3, the level of LDL-C decreased from 147.84±62.10mg/dL to 80.50±33.74mg/dL (mean change: -67.34±66.92mg/dL), and the level of total cholesterol decreased from 233.14±44.57mg/dL to 166.17±46.38mg/dL (mean change: -66.97±50.08mg/dL). The level of HDL-C increased from 48.30±1 6.40mg/dL to 51.02±10.41mg/dL (mean change: 2.72±14.78mg/dL), and the level of TG decreased from 198.34±93.69mg/dL to 162.30±68.62mg/dL (mean change: -36.04±69.30mg/dL). The overall changes of lipid profile were statistically significant (p< .0001). The other information of laboratory values from visit 1 to visit 3 was summarized as following (Table 6).

Table 6. The mean change of lipid profile & laboratory value from Visit 1 to Visit 3, (mg/dL)

	N	Visit 1	Visit 3	Difference (Visit 3 – Visit 1)	p-value[†]
		Mean± SD	Mean± SD	Mean± SD	
LDL-C	1,304	147.84±62.10	80.50±33.74	-67.34±66.92	<.0001
Total Cholesterol	1,305	233.14±44.57	166.17±46.38	-66.97±50.08	<.0001
HDL-C	1,304	48.30±16.40	51.02±10.41	2.72±14.78	<.0001
TG	1,301	198.34±93.69	162.30±68.62	-36.04±69.30	<.0001
AST	1,160	23.26±11.15	22.77±9.41	-0.50±8.91	0.0573
ALT	1,159	23.63±14.68	23.33±12.06	-0.30±13.06	0.4335
Creatinine	290	1.46±4.58	1.42±4.59	-0.03±0.15	0.0001
Creatine kinase	819	62.99±68.45	68.97±65.67	5.98±46.41	0.0002

†paired t-test

According to the analysis of the change for blood pressure from visit 1 to visit 2 (Table 7), the SBP (Systolic blood pressure) level decreased from 131.05±13.42mmHg to 127.37±10.69mg/dL (mean change: -3.68±9.85mmHg), and the DBP (Diastolic blood pressure) level decreased from 82.39±9. 91mmHg to 80.29±8.37mmHg (mean change: -2.10±7.79mmHg). The overall changes of blood pressure were statistically significant (p< .0001).

Table 7. The mean change of blood pressure from Visit 1 to Visit 2, (mmHg)

		Visit 1	Visit 2	Difference (Visit 2 – Visit 1)	p-value†
		Mean± SD	Mean± SD	Mean± SD	
SBP	1,307	131.05±13.42	127.37±10.69	-3.68±9.85	<.0001
DBP	1,307	82.39±9.91	80.29±8.37	-2.10±7.79	<.0001

†paired t-test

According to the analysis of the change for blood pressure from visit 1 to visit 3 (Table 8), the SBP level decreased from 131.08±13.44mmHg to 126.11±9.63mg/dL (mean change: -4.97±11.35mmHg), and the DBP level decreased from 82.42±9.92mmHg to 79.54±7.87mmHg (mean change: -2.87±8. 58mmHg). The overall changes of blood pressure were statistically significant (p< .0001).

Table 8. The mean change of blood pressure from Visit 1 to Visit 3, (mmHg)

		Visit 1	Visit 3	Difference (Visit 3 – Visit 1)	p-value†
		Mean± SD	Mean± SD	Mean± SD	
SBP	1,301	131.08±13.44	126.11±9.63	-4.97±11.35	<.0001
DBP	1,301	82.42±9.92	79.54±7.87	-2.87±8.58	<.0001

†paired t-test